

WHAT IS CLAIMED IS:

1. An automatic sound field correcting system in an audio system for supplying a plurality of input audio signals to a plurality of sound generators via a plurality of signal transmission lines,

each of the plurality of signal transmission lines including a frequency divider having a plurality of frequency discriminators each having a frequency discriminating characteristic different in frequency band, a plurality of in-channel level adjustors corresponding to the respective frequency discriminators, for adjusting levels of respective signals that are discriminated by the frequency discriminators, (a channel-to-channel level adjustor for adjusting levels of the audio signals, and a delay unit for adjusting delay times of the audio signals, whereby the input audio signals are supplied to the sound generator via the frequency dividers, the in-channel level adjustors, the channel-to-channel level adjustor, and the delay unit,

said correcting system comprising:

a noise generator for supplying a noise to the respective signal transmission lines independently in correcting a sound field;

a detector for detecting reproduced sounds generated from the noise reproduced by the respective sound generators;

an in-channel level corrector for correcting an adjusted

amount of the plurality of in-channel level adjustors based on detection results of the detector;

a channel-to-channel level corrector for correcting an adjusted amount of the plurality of channel-to-channel level adjustors based on the detection results of the detectors; and

a phase characteristic corrector for calculating phase characteristics of the reproduced sounds reproduced by the sound generator based on the detection results of the detector and also correcting delay times of the delay unit based on calculated phase characteristics.

2. An automatic sound field correcting system according to claim 1, further comprising:

a controller for causing the in-channel level corrector to correct an adjusted amount of the channel-to-channel level adjustor and causing the phase characteristic corrector to correct the delay times of the delay unit after causing the in-channel level corrector to correct the adjusted amount of the in-channel level adjustor.

3. An automatic sound field correcting system according to claim 1, wherein the noise generator supplies a pink noise independently as the noise.

4. An automatic sound field correcting system according to claim 2, wherein the channel-to-channel level corrector corrects respective adjusted amounts of the plurality of channel-to-channel level adjustor such that a total level

of all reproduced sounds reproduced by the plurality of sound generator at a listening position is made substantially equal over a full audio frequency band.

5. An automatic sound field correcting system in an audio system for supplying a plurality of input audio signals to an all-frequency-band sound generator (and a low frequency band exclusively reproducing sound generator) via a plurality of signal transmission lines,

each of the plurality of signal transmission lines including a <sup>①</sup> frequency divider having a plurality of frequency discriminators each having a frequency discriminating characteristic different in frequency band, a plurality of in-channel level adjustors corresponding to the respective frequency discriminators, for adjusting levels of the respective signals that are discriminated by the frequency discriminator, a <sup>②</sup> channel-to-channel level adjustor for adjusting levels of the audio signals, and a <sup>③</sup> delay unit for adjusting delay times of the audio signals, whereby the input audio signals are supplied to the sound generator via the frequency divider, the in-channel level adjustors, the channel-to-channel level adjustor, and the delay unit,

said correcting system comprising:

a noise generator for supplying a noise to the respective signal transmission lines independently in correcting a sound field;

a detector for detecting reproduced sounds generated from the noise reproduced by the respective sound generators;

2 an in-channel level corrector for correcting an adjusted amount of the plurality of in-channel level adjustor based on detection results of the detector;

1 a first channel-to-channel level corrector for correcting an adjusted amount of the plurality of channel-to-channel level adjustors of the signal transmission lines, in which the all-frequency-band sound generator are provided, based on the detection results of the detector;

3 a second channel-to-channel level corrector for correcting an adjusted amount of the plurality of channel-to-channel level adjustors of the signal transmission lines, in which the (low frequency band exclusively reproducing sound generator) are provided, based on the detection results of the detector; and

4 a phase characteristic corrector for calculating phase characteristics of the reproduced sounds reproduced by the respective sound generators based on the detection results of the detector and also correcting delay times of the delay unit based on calculated phase characteristics.

6. An automatic sound field correcting system according to claim 5, further comprising:

a controller for causing the first channel-to-channel level corrector to perform the correction, then causing the

phase characteristic corrector to perform the correction, and then causing the second channel-to-channel level corrector to perform the correction after causing the in-channel level corrector to perform the correction.

7. An automatic sound field correcting system according to claim 6, wherein the noise generator supplies a pink noise as the noise in the respective corrections of the in-channel level corrector and the first channel-to-channel level corrector, supplies the pink noise as the noise in the respective corrections of the phase characteristic corrector, and supplies the pink noise as the noise in the correction of the second channel-to-channel level corrector.

8. An automatic sound field correcting system according to claim 7, wherein the second channel-to-channel level corrector corrects an adjusted amount of the channel-to-channel level adjustor of the signal transmission line in which a low frequency band exclusively reproducing sound generator is provided such that levels of reproduced sounds reproduced by the all-frequency-band sound generator are set substantially equal to a level of a reproduced sound reproduced by the low frequency band exclusively reproducing sound generator.

9. An automatic sound field correcting system according to claim 1, wherein the phase characteristic corrector calculates a correlation between the detection results of the

detector and then detects the phase characteristic based on  
a correlation value obtained by calculation.